

METHOD AND APPARATUS FOR SCHEDULING SWITCHED  
MULTIBEAM ANTENNAS IN A MULTIPLE ACCESS ENVIRONMENT

468457 Abstract of the Invention

5 The invention is a switched beam beamforming method and  
apparatus for wireless communication receiving stations  
utilizing an array of antenna elements in which only a single  
beam is generated at any given instant and the beam is  
switched at a very high rate, e.g., faster than the data rate  
of the system. An algorithm for scheduling the beamforming  
sequence is disclosed that optimizes performance by optimizing  
the signal/interference-plus-noise ratio for a given set of  
conditions at any instant in time. In particular, spatial  
diversity offered by antenna arrays for direct sequence-code  
division multiple access communication systems is exploited by  
an intelligent switched beam antenna at radio frequency level.  
The design is optimized to yield conditional mean estimates of  
the communication channel during uplink transmission and  
compute minimum variance estimates of the communication  
channel by optimally combining the signals of the spatially  
20 distributed antennas at chip rate.